MUSEUM OF INSECTS

Dr. Shamsul Islam Farooqi (Alig.)

Foreword

The universe created by Allah Tāla is very vast. It is impossible to count all the innumerable living and non-living things created by Allah. He alone knows their exact number.

Allah Tāla has not only caused human beings to live on this earth but lakhs of other kinds of creatures too. Out of all living things, 80% are insects. In fact there are approximately ten and a half lakh species of insects, each having its own life style, living ways and food habits!

A detailed study of these insects brings to light Allah's creativity and His signs present within His creatures that surprise human beings.

Dr. Shamsul Islam Farooqi has written twelve books and more than 250 articles on living creatures which are very interesting and full of knowledge. Most of his books deal with the amazing world of insects.

This book "Museum of Insects" takes children and elders alike to the fascinating world of insects. Several insects are introduced in this book with descriptions of their astonishing features.

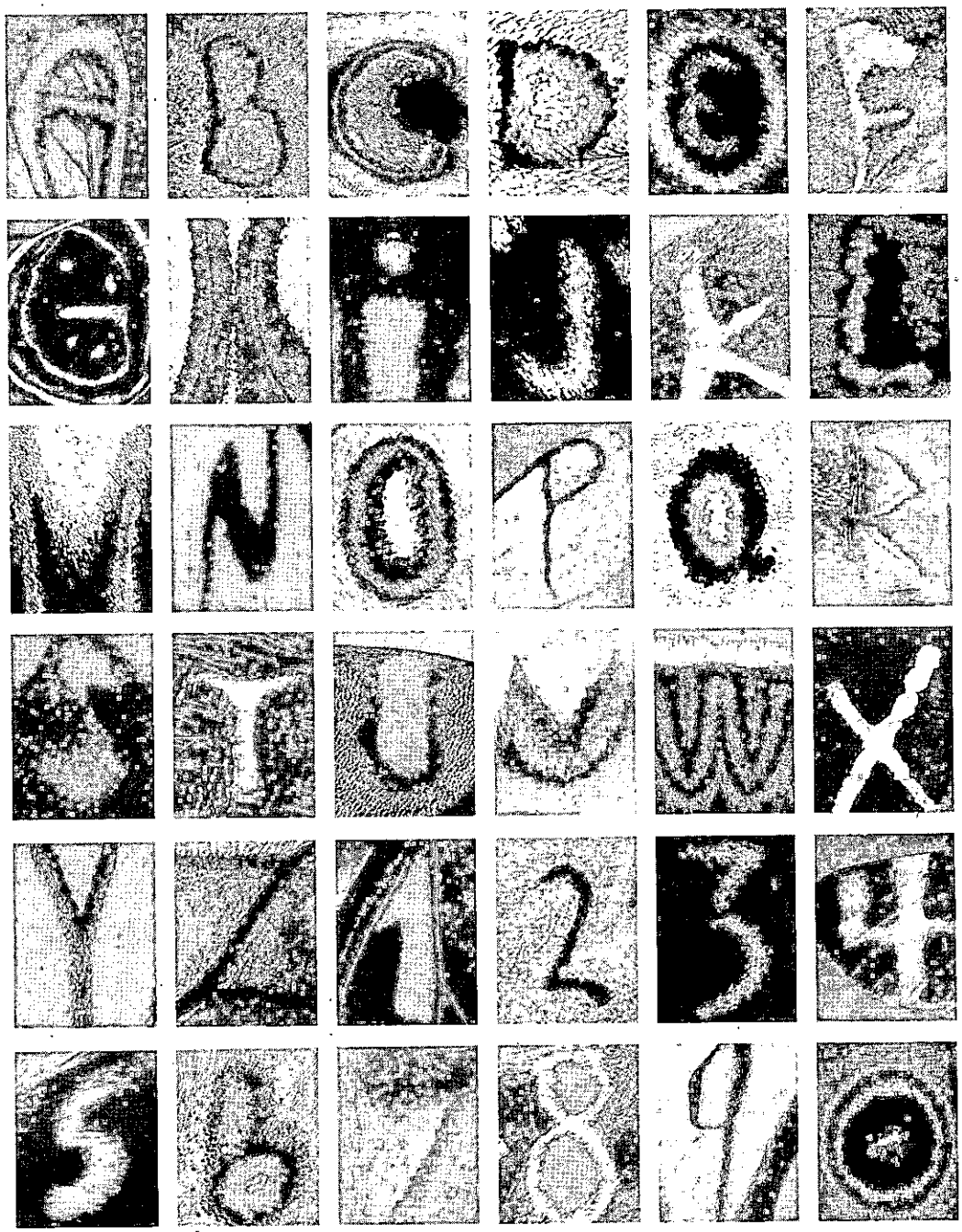
For instance, it is known that there are about 1600 species of mosquitoes, several of them have subspecies also. Similarly it is amazing to know that a mosquito beats its wings 275 times in one second and 16,500 times in a minute which produces a sound called mosquito's 'pin pin'. In a similar way, from this interesting book, you not only get information about insects such as honey bee, butterflies, silk worms and praying mantis but also see their pictures in the museum.

Dr. Shamsul Islam Farooqi, as a true Muslim, brings to our attention the Signs of Allah hidden in nature's strange creation, the insects. He brings before us such astonishing and interesting details which add to our faith in the greatness and supremacy of Allah.

May Allah reward Dr. Farooqi and add to the faith of all those who visited this museum and include us within his obedient and thankful servants. (Āmeen)

Ejaz Ahmad Aslam
Chief Editor
Radiance Views Weekly
New Delhi

Alphabets & Numerals found on Wings of butterflies & moths



Courtery: Kjell B Sandved through Dr. V.V. Murthy, I.A.R.I., New Delhi - 12

Museum of Insects

Ali Saad had an extremely restless streak in his nature. He did not know how to sit for long at one place. He, along with his cousins Ali Ameen, Ali Abdullah and Abid would create noisy scenes all the time. By age, Ali Ameen was the eldest, Ali Abdullah a little younger than him and Abid was the youngest. Ali Saad had a special affinity towards animals, dinosaurs being his favourite. He remembered long-drawn-out names of several dinosaur species and could mimic their sounds as well. Ali Saad was also exceptionally close to his Dada Abbu who used to carry out research during his service days. Ali Saad would often catch one insect or the other and would put several questions to his Dada Abbu such as 'which is this insect?', 'where does it live' and 'what does it eat?' etc.

His Dada Abbu had told him that the Delhi-based institute where he used to work had an Insects' Museum which common people, especially children, would visit with great fondness. Ali Saad and other children were also desirous of visiting this museum. As the summer vacations were round the corner, the children requested their Dada Abbu to take them to the museum. Seeing the children's interest, Dada Abbu telephoned one of his colleagues Dr. Ramamurthy and fixed the date and time with him to visit the museum. He also requested Dr. Ramamurthy to spare some of his time for the children.

The children were very happy to learn about it and eagerly waited for the museum visit. Finally the scheduled day and time arrived and Dada Abbu along with the children reached the Department of Entomology of the Indian Agricultural Research Institute. This institute is situated at Patel Nagar, a little ahead of Karol Bagh and is also known as Pusa Institute. Dr. Ramamurthy was already waiting for them. He felt very happy to meet all of them and they then started for the museum. The museum was built in a big hall of this department itself. Before entering the main gate of the museum, everybody looked at the outer walls which were decorated with photographs of various insects. While they were all looking at them with great interest, Abid spotted a unique chart having English alphabets and numerals from one to ten. He inquired with great surprise, "Uncle Murthy why you have put up this chart of alphabets and numerals along with insects' photographs?" Dr. Ramamurthy laughed and said: "Oh dear! This is not a chart of alphabets and numerals but coloured patterns found on the wings of butterflies and moths. An American scientist discovered and made a chart out of them. We have procured this chart from an American Institute."

This information was highly surprising. Thinking about the creativity of nature, all of them entered the hall of the museum. Here big almiras were placed all around the hall and were closed. Several showcases were placed on tables kept in the central portion of the hall. Inside those, a large variety of insects were kept. Dr. Ramamurthy opened the lid of one of the showcases and said:

"Look here, the base of this showcase is made of cork sheet so as to hold the pins of insects firmly. There are narrow channels all around the showcase which remain filled with napthaline powder. Due to this, living insects do not come near and thus these dead insects get protected. The hall is also air-conditioned. Dead insects are well

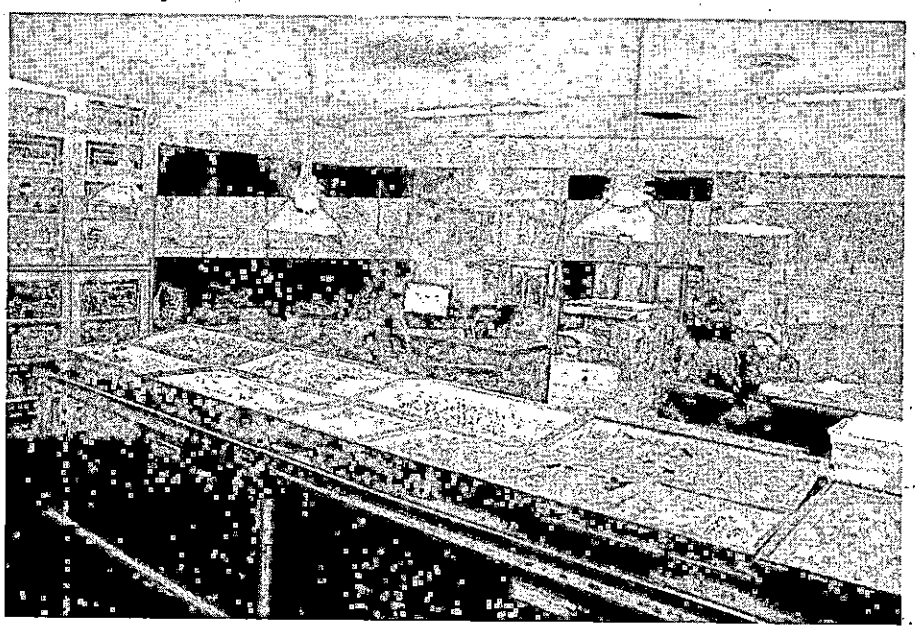
maintained at low temperature. In our museum, insects which are more than hundreds of years old are preserved in their original form."

Hearing this Ali Sād remarked:

"This is incredible! Even large animals decompose and perish after sometime. Then how is it possible for such tiny insects to remain in good condition for such a long time?"

"Nature has granted insects a very special and astonishing characteristic. Insects do not have a skeleton but their outer skin serves that purpose, and it is the outer skin to which the muscles are attached. After death the muscles and the internal organs get destroyed but the outer skin remains in the original form. The result being, the insects appear living even after their death." Dr. Ramamurthy explained.

When the children were examining the insects in the showcases, Dr. Ramamurthy said:



Insect Museum (Showcases kept on tables)

"Well friends, the world of insects is huge and fascinating. Scientists say they make up 80% of animal kingdom. The number of their species is nearly ten lakhs and fifty thousand. They have huge

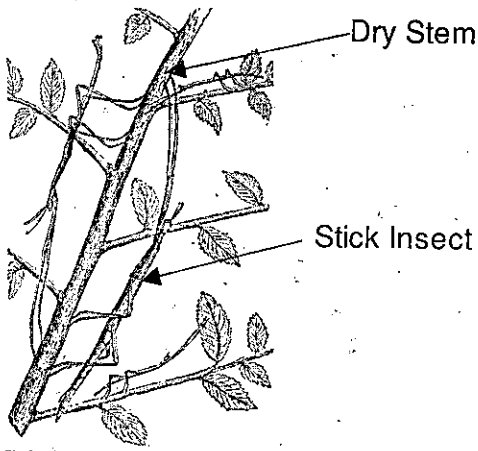
groups like grasshoppers, butterflies, dragonflies, bugs, moths, beetles and flies etc. The number of such groups is twenty-nine. Here in these showcases we have kept sample insects of each group. By looking at these, one can have a glimpse of the vast insect world."

Almiras in Insect Museum

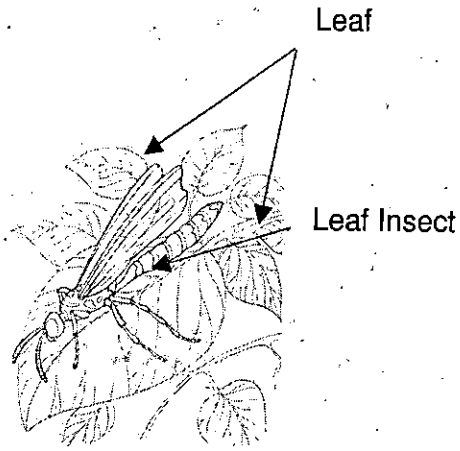
Pointing towards a showcase on the table, Abid asked:

"Uncle Murthy, why have you kept this dry twig and leaves along with the insects?" Dr. Murthy looked there and said:

"Look friends! These are neither dry twig nor leaves but they are stick-like and leaf-like insects. Their Creator has provided these features to them. They are called stick insects and leaf insects. Their enemies get confused and consider them as sticks and leaves. That is how they are able to protect themselves from their enemies."



Stick insect



Leaf insect

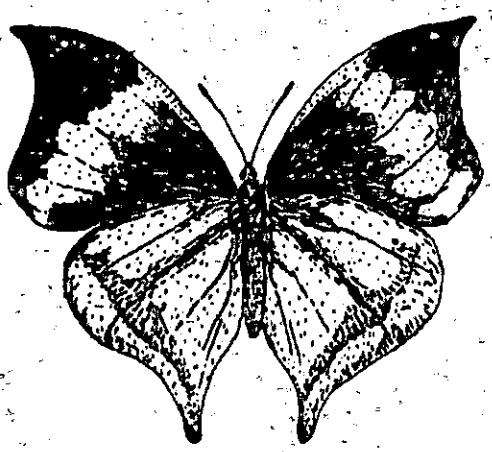
In the mean time, Ali Saad spotted a beautiful butterfly kept in a showcase and by the side of this also there was a dry twig with few dry leaves still intact. When he asked about that, Dr. Ramamurthy told him:

"This is Kalima butterfly. Look, what beautiful patterns it has on its wings! By its side, a dry guava twig has been placed with a few dry leaves. See carefully the leaf on the left side. That is not a leaf but the under surface of the wings of Kalima. When it sits on a dry twig with folded wings, the later appear to look exactly like a dry guava leaf."

After explaining this, Dr. Murthy took out the butterfly and held it upside down. Everybody was simply amazed as the lower side of the wings looked exactly like a dry leaf. Dr. Murthy explained that this was again a protective device granted by nature. After this, he showed them a bark of a tree which was kept in another showcase and asked:

"Can you tell what it is?"

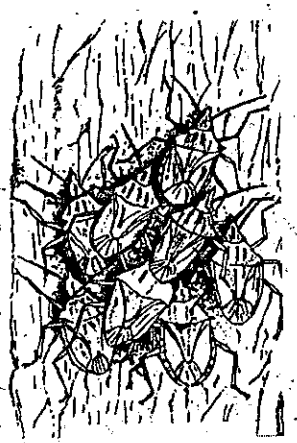
Kalima sitting on a twig
(Wings folded showing lower surface)



Kalima butterfly
(Patterns on upper side of wings)

"Perhaps the bark of some tree." Several voices were raised together.

"Look carefully. It is not only bark but sticking over it is a duster of insects. These are some bugs which are sucking the juice from this bark. Their bodies are highly flattened and the colour and texture is exactly like the bark. Their enemies can't recognize them and so they are able to protect themselves." explained Uncle Murthy.

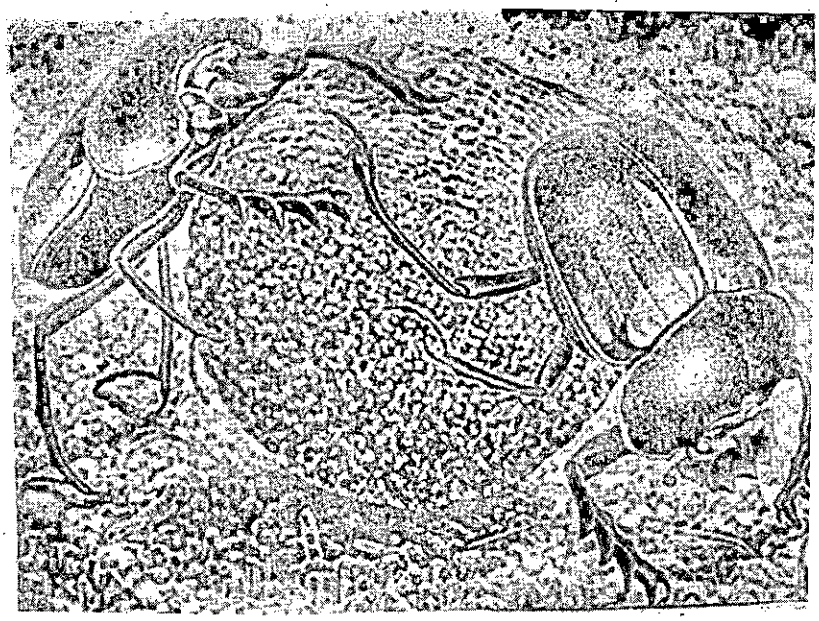


Bugs on bark of Acacia
(Flock of Helys dentata)

In another showcase, there was a large black insect, with a glossy cover as if it was

polished. By the side of this insect, there was some mud balls kept in a glass jar. Dr. Ramamurthy told the children about these:

"This is a beetle called Dung beetle or Dung roller. The beetle and its larvae live on dung. Adult beetles roll dung with their hind legs and make round balls out of it and this is the reason they are called dung rollers. The beetle lays eggs inside the dung balls so that the emerging larvae have no problem of feeding."



Dung beetle

Unlike other insects, there were no wings visible here, so Ali Abdullah inquired:

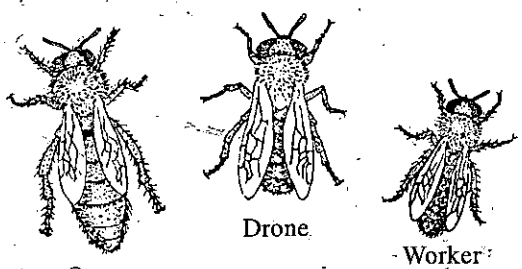
"Uncle Murthy, is it possible for this beetle to fly even though it doesn't have wings?"

"It has all four wings. The first pair is very thick and hard which make a covering over its body while the hind pair is used for flying and remains hidden under the first pair and is not visible to you."

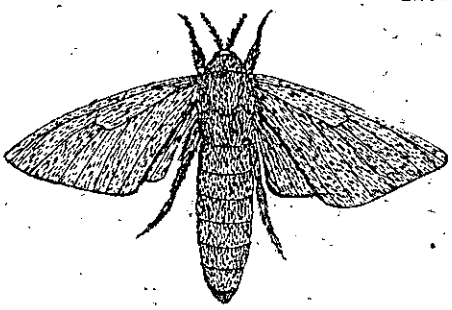
After explaining this, Uncle Murthy moved towards another showcase and told them that it contained those insects which provide

very useful things to human beings. Recognizing honey bees, Ali Saad said:

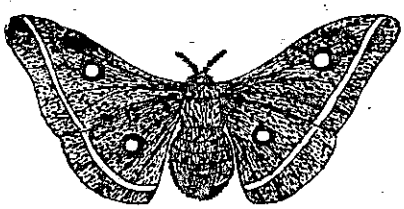
"Uncle Murthy these appear to be honey bees but why is there so much difference in their sizes?"



Hony bees



Fine Silk moth

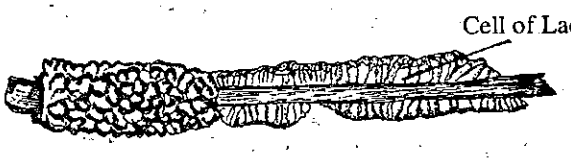


Tusser Silk moth

Eri Silk moth

Cocoon

Silk Worm and Cocoom



Lac deposited on twing

"This is because their casts are different. The largest is the queen which lays eggs, smaller than the queen is male which are called drones, while the smallest are working bees. By the side of these are silk worms whose pupae or cocoons yield silk for us. Below the moths one can find their cocoons. Structure of moths and sizes of their cocoons are different because they belong to different varieties. Smaller moths provide best quality of silk whereas larger moths give rough silk called tussar silk."

In the same box Ameen again spotted some twigs. Pointing out towards those, he asked:

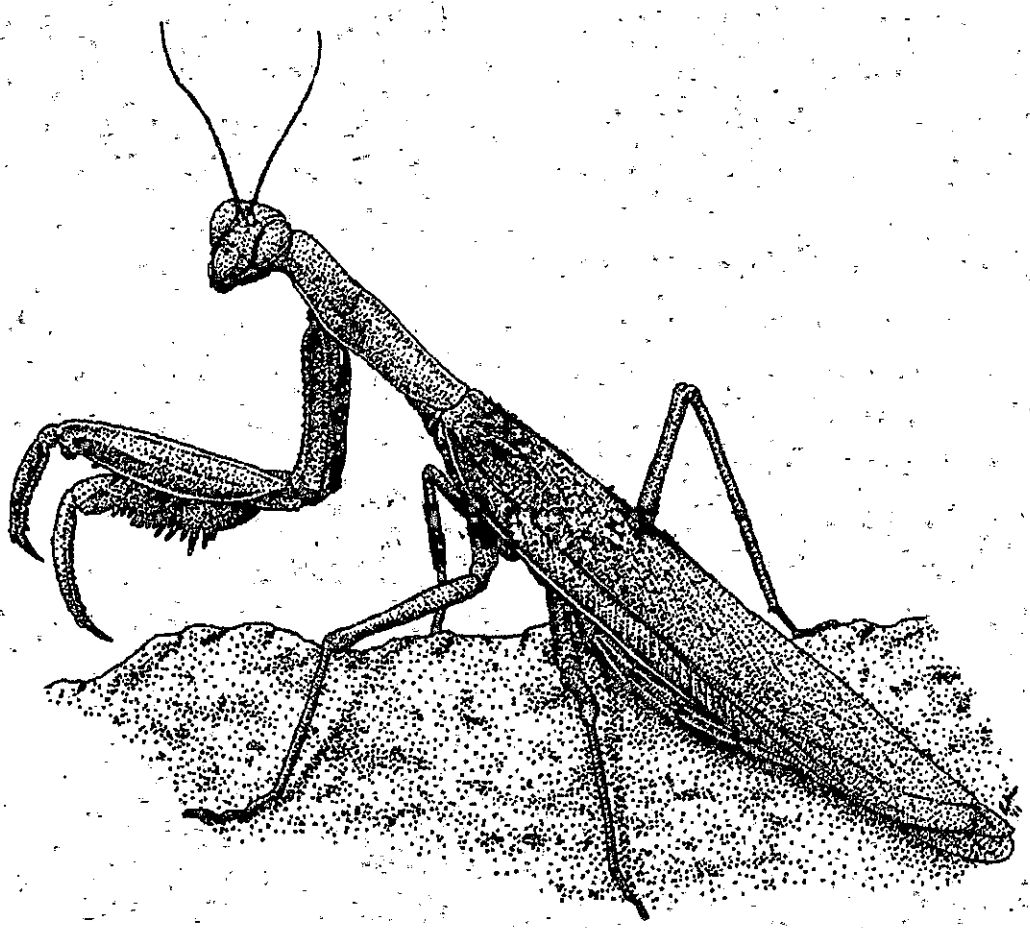
"I am absolutely sure that these are twigs only with no insects over them. Would you tell us, Uncle Murthy, the purpose of this twig in an insect box?"

"You are right but once there were innumerable small insects on this twig, they were sucking the sap of this plant. They continued feeding and grew up. Soon a red resin started oozing out of their bodies. This resin was in such a huge quantity that the poor fellows got buried in it and died. After drying, the resin became hard but was something useful for men. This was called Lac. You might have seen several envelopes and parcels having a seal on them which is nothing but lac. Besides this, polishes, varnishes and creams of various types are also prepared with the help of lac. India is largest lac producing country of the world and this brings foreign revenue also." Dr. Murthy explained in detail.

In another showcase, there was an elongated insect, similar to grasshoppers. Its raised head was placed at the tip of a long neck and it had folded forelegs in such a way as if it were praying. Uncle Murthy said:

"It is a praying mantis. It sits in silence among the plantations like a saint. But as soon as any grasshopper, butterfly or moth approaches, it suddenly unfolds its spinning forelegs, catches the prey

and brings it back. Soon it tears off the prey and eats it up. Being a predator of harmful insects, it is considered a friend of human beings."



Praying Mantis

Having a glance at the showcases on the table, Ali Saad inquired:

"Uncle Murthy won't you show us those insects which are inside your almiras?"

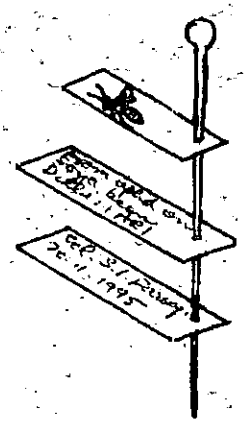
"Some sample insects may be shown to you but truly speaking these are not meant for general public."

"Then what is their purpose?" Ameen wanted to know.

"Look here, normally two types of people visit our department. People like you who are only interested to see the insect world. Their purpose is served by looking at these showcases. The second type is those who carry out research on insects. They need particular insects only. We provide these to them so that they study them and return them when they're done. All those insects which are kept inside the almiras are identified ones and are extremely valuable. That is the reason we are very careful about them. Besides, we also run an insect identification service. Our experts provide accurate names of insects to students and researchers of other places. There are several other organizations in the world which also take up this job. Commonwealth Institute of Entomology of London charges twenty pounds for indentifying a single species of insect while our institute does this work free of charge," explained Dr. Murthy.

After this, Dr. Murthy opened one of the almiras and took out a drawer. Showing it to children he said:

"See these ant-like small insects. Those card strips were made by your Dada Abbu. These are called parasites which develop on the body of harmful insects. There are small labels on these insects which show the person who caught them from which place and on which date."



Insect gummed on a tag

Dr. Ramamurthy took out several such drawers. These contained common insects like butterflies, moths, beetles, grasshoppers, dragonflies and house flies etc. but each was having innumerable varieties. As Uncle Murthy took out one drawer, Ali Saad spotted some mosquitoes in it. Recognizing them, he said:

"Does this drawer contain some mosquitoes also?"

"Not only some, but the whole drawer contains different species of mosquitoes. To accommodate their species, we have several more drawers also."

"Have mosquitoes so many different kinds?" asked Ali Abdullah

"Yes, they have innumerable kinds. Several of them are responsible for spreading human diseases such as malaria, dengue, yellow fever, chicken guinea, filariasis, encephalitis etc."

Listening about mosquitoes, Ameen suddenly recalled the day Maulana Sahib was talking about mosquitoes while explaining some Quranic Ayaat. Thinking about that, he said:

"Dada Abbu! Are mosquitoes also mentioned in Qur'an?"

Dada Abbu got surprised but felt very happy that his grandson could remember this. It was certainly a matter of pride for him. When Dr. Murthy heard this, he too was surprised and inquired:

"Is Ameen right in his statement? I wonder how an organism like mosquito could be included in your religious book." Dada Abbu explained by saying:

"Of course, Ameen is absolutely right. But Quran is not our book alone. It is a book of guidance for the whole of mankind. It is not only the mosquito which is mentioned in Holy Qur'an but many other insects such as housefly, locust, ant, spider and honey bee are also mentioned."

Since Dr. Ramamurthy himself was an entomologist his inquisitiveness increased. He was desirous of knowing the purpose behind mentioning insects in a religious book and he asked Dada Abbu about it. Dada Abbu smiled and said:

"Dr. Murthy, this is an extremely vast topic. For now let's simply understand that when Allah explains something, He gives examples and metaphors. He cites such examples that common people understand easily. For instance if He wishes to tell about a thing

which people consider weak and useless although it is full of wisdom, He cites examples of mosquitoes, house flies or spider's web. If punishment is mentioned, examples of locust and louse are used. If information about communication among animals is stated, the example of ants is given, while citing the activities of honey bees, mankind is commanded to follow the paths of Allah made easy by Him."

Dr. Ramamurthy was highly impressed and wanted to know if he himself could study more. Considering his desire, Dada Abbu said:

"Dr. Murthy, the Holy Qur'an is available in almost all languages. If you want, I will bring for you an English translation which you yourself can study." Then he addressed the young ones, saying:

"You see, the mosquitoes appear weak and insignificant by their names only but in reality they are not. The little creatures hide so many astonishing features that even an atheist cannot deny that they were brought into existence by some supernatural power. By looking at them one easily realizes the greatness and supreme powers of Allah." Dada Abbu continued further:

"With reference to mosquitoes, the Holy Qur'an says that Allah does not feel shy to give the example of a mosquito or something even smaller than it because the faithful know that it is the truth from Allah but those who deny say, 'What does Allah mean by this example?'. He lets many go astray through it, and guides many by it. But He makes only the disobedient go astray. As a matter of fact, this narration of Qur'an forces people to think something."

Since Dr. Ramamurthy was also listening with full attentiveness, he asked:

"What does force us to think?"

"Aparantly mosquito is very weak and valueless but when cited by Allah, the faithful take it as true. However they do so on some

basis. I feel they might do it on the basis of already available information about mosquitos or by carrying out researches on them. In both conditions, such facts would come to light that they would be simply astonished and highly pleased with them and then only would realize that the little creature was not weak and valueless but had so many hidden features that speak of the greatness and supremacy of Allah."

Hearing this, Ameen said to his Dada Abbu:

"Dada Abbu, we have never thought about it in this way! It will be very good if you tell us some thing more."

Agreeing with this suggestion, Dada Abbu told Dr. Murthy:

"Well Dr. Murthy, I feel the children have enjoyed looking around the museum and have had a good idea of the insect world. Shall we all go to your room and let them know some important things about mosquitoes? If possible, please send someone to collect some mosquitoes from the grass outside. Would you also please take out your microscope so that the children can have a closer look at the mosquitoes?"

Dr. Murthy agreed and took them to his room. He took out his binocular microscope and got some mosquitoes from outside. These were kept in a cavity block filled with alcohol. Before asking children to examine, Dada Abbu said:

"The mosquitoes that you saw a little while ago were a few species of Indian origin otherwise the total species known, from all around the world, are over sixteen thousand."

"So many!" exclaimed Abid with great surprise.

"And these are just the ones which can be easily separated on the basis of structural differences."

"Do you mean there are yet other species also?" Ali Saad asked.

"Exactly, there are several species which are similar in their body parts but differ in their ways of living and are called subspecies.

These are excellent examples of Allah's creativity. A London event is very famous because of subspecies involvement."

"What is that event?" several voices asked eagerly.

"It was during 1937 when London was in the grip of severe malaria. The Government was worried and was spending huge amounts of money to control it but in vain. Ultimately the problem was handed over to scientists. Research revealed that instead of one species of mosquito there were six subspecies involved. They were structurally alike but different in their ways of living. One lived in stagnant water, while other in running water. One was breeding in shallow water and the other in deep water. One liked warm while the other cold water. Out of these, only one was responsible for malaria. When that was taken care of, the malaria got controlled. Don't you think it is an amazing quality of mosquitoes?" Dada Abbu asked.

"It is really fantastic! Such a small creature, but its subspecies having so many different ways of living." mused Ameen.

"Dada Abbu! Mosquitoes are capable of building huge populations which also appear as an extraordinary quality. During the rainy season, their number increases to such an extent that it appears that the more they are killed, the more they are produced. How does it happen?" Ali Saad asked.

"There could be several reasons." Dada Abbu replied.

"What reasons?" asked Ali Ameen.

"Firstly mosquitoes are very tiny. They can hide themselves in small places. Dark corners in the house and plantations outside are good hiding places. Besides, they take little time to become adult from egg; say 15 to 20 days only. If the surrounding temperature is more, then the new generation may be ready in eleven days only. This being the reason that the more you kill, the more they are produced. Undoubtedly this is an extraordinary quality of mosquitoes. Perhaps this is the reason that in some parts of the world their population is

controlled to a great extent but complete eradication could not be achieved."

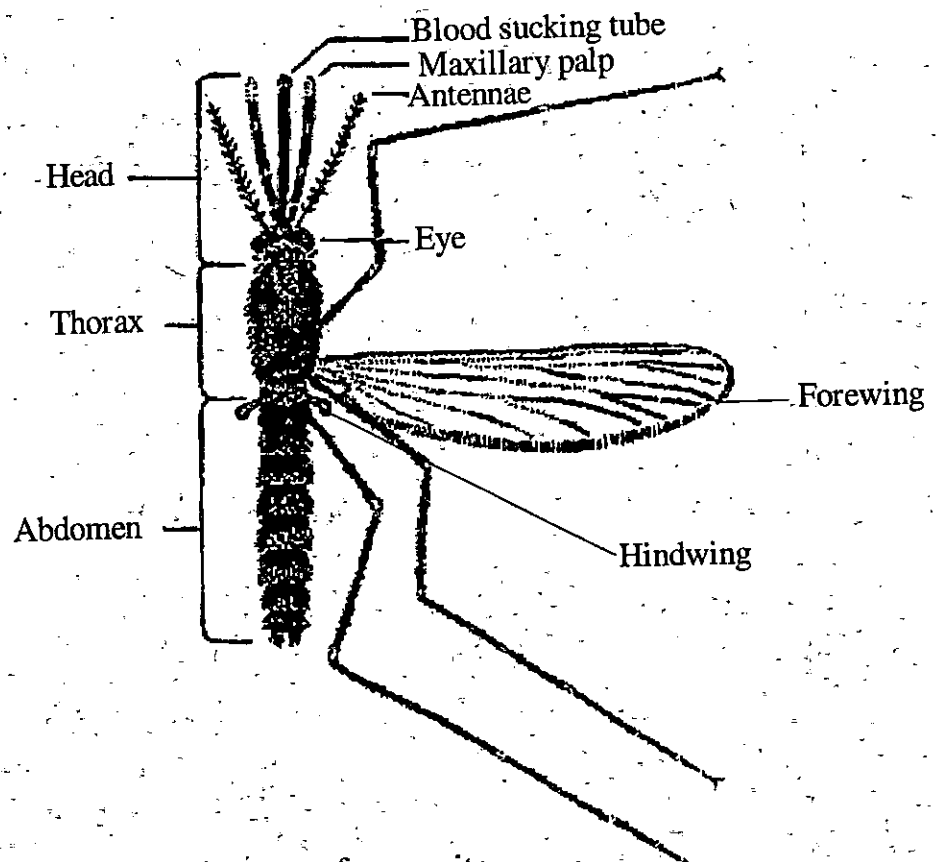
After telling this, Dada Abbu asked the children to come closer and examine the structure of the mosquito one by one under the microscope.

Ameen came first and looked into the microscope. The tiny mosquito had a slim body but very long legs. Looking at its head, Ameen asked:

"What are these long hairy brush-like projections in between the eyes?"

"These are important organs of mosquito with which it can feel its surroundings. Technically they are called antennae."

Looking at the mosquito, Ali Saad asked:



Body parts of mosquito

"What is this needle-like thing extending out from the lower side of the head?"

"This is the feeding tube of mosquito. After a while I will let you know its structure and tell you how it can suck your blood"? Dada Abbu told.

When Ali Abdullah examined the mosquito, he pointed out:

"The insects that we saw were having four wings but there are only two wings in its body then how can it fly so swiftly?"

"The ability to fly swiftly has been granted by Allah. However if you look carefully, you will find another very small pair of wings just below these. They are swelled at their tip and are called halters. They help the mosquito to balance itself during flight." Dada Abbu explained.

When Abid examined the magnified mosquito, he got frightened and said:

"Oh my God! It is so dreadful. Its whole body is covered with hair and how long and pointed is its proboscis! That is why its bite is so irritating."

After everybody has had a look at the structure of mosquito under the microscope, Dada Abbu asked:

"Can any one of you tell how the sound of 'pin-pin' is produced by the mosquito?"

"Dada Abbu! This is no question to be asked. Like any other animal, mosquito must also be producing this sound from its mouth." Ali Abdullah said.

"It is not so. You may be surprised to know that this sound does not come from its mouth but from its wings."

This information was simply amazing. Do wings produce sound? All were eager to know the technique by which the mosquito produces sound from its wings. In this connection, Dada Abbu told:

"You see, a flying mosquito moves its wing very rapidly. Scientists have found that they can make 275 cycles per second. One cycle means lifting the wing and deflecting it backward, then lowering it and deflecting forward. If a graph of wing movement is drawn, one cycle will make a figure of an elongated eight. The rapid movement of wings pushes air from front behind. Wings vibrate and produce the sound of 'pin-pin'."

"This is quite understandable, but we can't imagine that with a speed like that, how is it that the tiny and membranous wings do not break?" Ali Saad inquired.

"As a matter of fact, they should break but here we see a miraculous act of Allah. The joint with which the wing is attached with the body is made of a rubber-like substance called resilin. During movement it stretches and again come to original position but never breaks." Dada Abbu explained.

The information regarding mosquitoes was really amazing for the children. It was beyond their imagination how Allah takes care of His tiny creatures? Thinking about the same, Ameen said:

"The greatness of Allah is beyond our imagination. How excellent and unique are the ways He has taught to the creatures like mosquitoes!"

"You have yet not seen the technique with which a mosquito sucks your blood. You will be simply amazed to look at it. The tiny fellow comes, making a musical sound and before you can do anything, it sucks your blood and flies far away. A little while ago you saw the needle-like proboscis of mosquito. Can you imagine that the needle was not single but composed of six hair-like filaments?" Dada Abbu said.

"How it could be? We just now saw it was a single needle only." Ali Saad said.

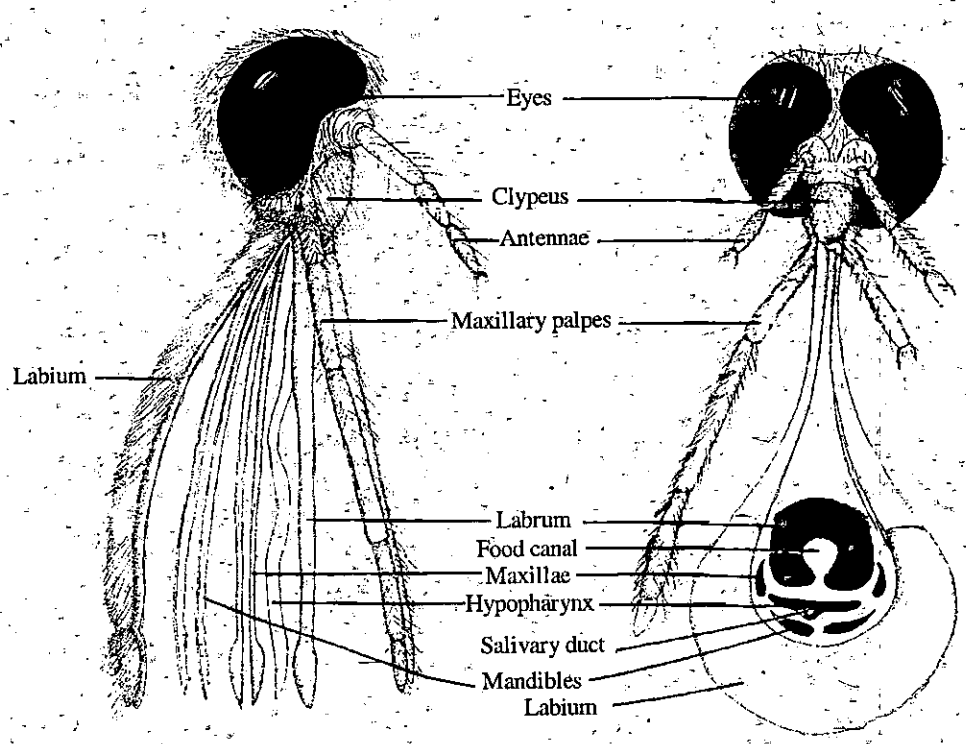
In the meantime, Dada Abbu had already separated the different filaments of the mosquito's proboscis with the help of fine needles. After this he called the children and asked them, to come one by one and count the number of filaments the proboscis got divided. The children came and started examing. They were simply amazed to look at the creativity of Allah. Really the single proboscis had split into six long, extremely thin filaments. Then Dada Abbu gave a description of those filaments:

"Look, the central filament has a c-shaped structure. It means it has a central channel running along its length. The terminal end of this filament is pointed and sharp. Technically it is called labrum. A flattened filament opposes this, thus making its channel as food canal of mosquito. A narrow channel runs though the flattened channel opening into the salivary glands of the mosquito. This flattened filament, is termed as hypopharynx. Out of the remaining four filaments two are called mandibles and the other two as maxillae. When all six filaments come together, they form the proboscis of mosquito. These filaments are enclosed within an outer covering called labium. While sucking blood, labrum is first penetrated and then saliva from hypopharynx oozes out, which softens the flesh."

"That means Dada Abbu that all the filaments do not penetrate simultaneously but one after another." said Ameen.

"It is not like that. When proboscis enters, only the labium is left out but other filaments are together. It is only their working sequence which differs. First labrum makes a wound which is deepened by mandibles and maxillae. As bleeding starts the proboscis becomes ready for sucking."

"Sucking of blood must be a difficult process. How could a mosquito suck blood with such a long proboscis?" asked Ali Abdullah.



Mouth parts of mosquito

"The mosquito presses like a dropper, a portion of its mouth immediately behind the base of proboscis. Due to this, the air present inside food canal is expelled out, creating a vacuum. At that very moment the mosquito not only dips the tip of proboscis into blood pool but expands the depressed portion with the result that blood rapidly runs up into the food canal and enters the mosquito's mouth within seconds, its work is completed and the mosquito flies away leaving you scratching." Dada Abbu explained in detail.

After looking at the structure and process of blood sucking, the children were highly impressed. Ameen said spontaneously:

"Really, there is no parallel to Allah's creativity which provides such a fascinating structure to an ordinary organism like mosquito and taught it such a novel way of sucking blood."

Dada Abbu addressing the children, said:

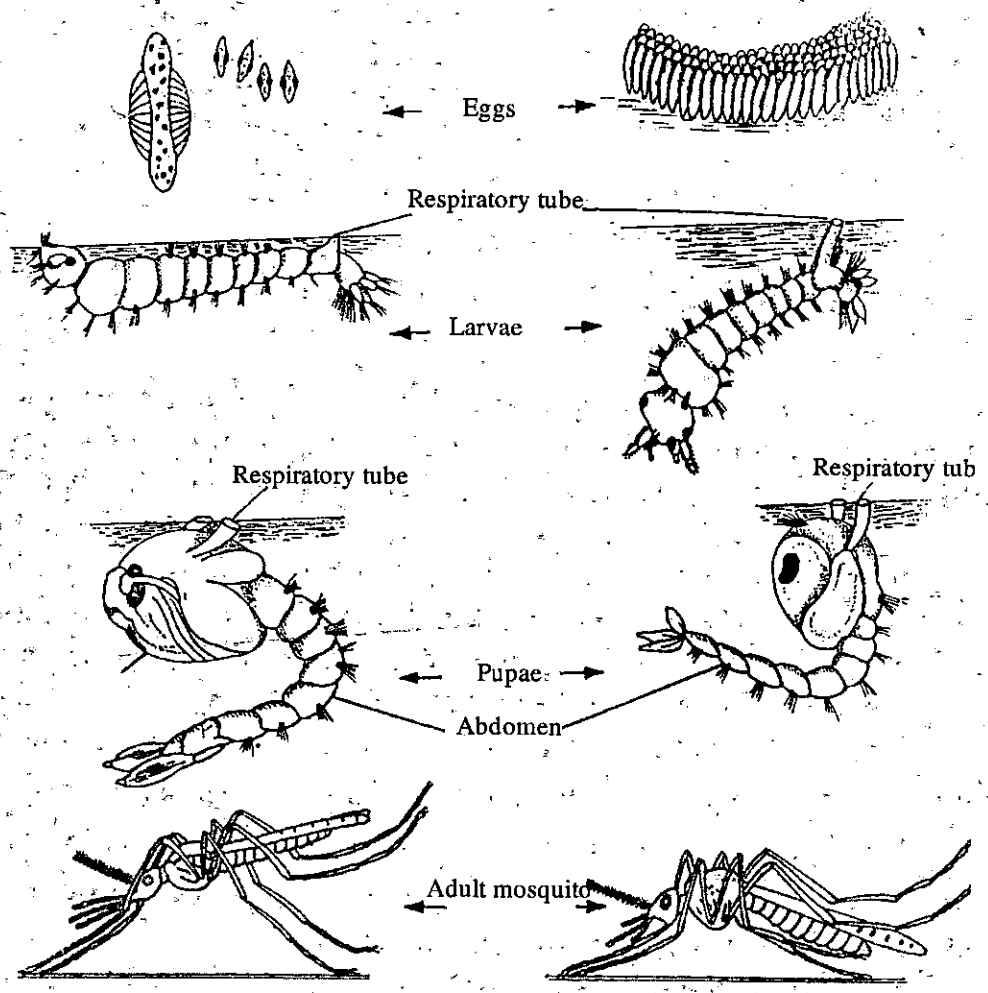
"Just now, you kids examined the mosquito from close quarters and also learned many of its astonishing features but no one asked where this huge army of mosquito develops?"

Hearing this, Ali Saad said:

"Because we already know that the mosquito population builds up in water."

"But how? Do you know anything about the eggs and larvae?" asked Dada Abbu.

Now not only Ali Saad but everybody else was silent. Seeing this, Dada Abbu said:



Life Stages of Anopheles mosquito

Life Stages of Culex mosquito

"Well in our area, three kinds of mosquitoes are very common. They are Anopheles, Culex and Aedes. The female of first two lays eggs in clusters of 200 to 300 while that of the last one lays eggs one at a time. Surprisingly, the mosquitoes which live in dry places very easily find suitable places for breeding in water. Eggs float on the surface of water. Within twenty-four hours, tiny larvae hatch out from the eggs. Larvae live in water and get their food from there only. However they breathe in outer air for which there is a tube projecting out from the hind part of their bodies. Normally larvae remain stationary near the surface of water with the tube projecting out in open air. Air entering this tube goes to the body through a network of tubes."

"Dada Abbu, if the larvae remain stationary, then how do they obtain their food?" asked Ali Saad.

"They are stationary but go on moving their bodies slowly. They have clusters of hairs over their bodies and near their mouths. Movement of the hairs directs a water current going towards their mouth. The moment some micro-organism comes near their mouth, it is pushed there by the hairs and this way, nature provides food to the stationary larvae. After one week, the larvae are transformed into pupae. Their head region broadens and it assumes a comma-shaped figure. Now they do not need food but continue to breathe in open air through the tube. After two days the pupae burst and adult mosquitoes emerge out and fly into the open air."

Hearing this, Ali Saad said:

"How strange is it that this adult mosquito lives in dry places while its young ones live in water. They get their food in water but breathe in open air. The adult mosquito sucks the blood while larvae feed on micro-organisms in water. Nature does whatever it wishes."

The children had spent lot of time at the department of Entomology of the Indian Agricultural Research Institute. During

their visit there, they not only had an enjoyable as well as detailed visit of the museum but had examined many insects at close quarters besides obtaining very interesting and amazing information about them. For all this, they thanked Dr. Ramamurthy, said good bye to him and set out for home with Dada Abbu.

On the way, children were recalling the astonishing features hidden in insects. They thought of the chart having English alphabets and numerals which in reality were coloured patterns on wings of butterflies and moths. They remembered the beautiful Kalima butterfly, leaf and stick insects which have been provided with excellent ways by Allah for protecting them from enemies. They visualized the mantis which prays with folded hands but brutally devours its prey. Their hearts were filled with wonder at Allah's Creativity and Supremacy which granted so many amazing qualities to tiny creatures like insects which astonish even human beings. The hearts of the children swelled with feelings of gratefulness and gratitude to Allah, Who, through tiny insects gifted human beings with precious and useful things like lac, silk and honey.